

What is claimed is:

1. An ultrasound review station comprising:

a voice input device;

5

a processor; and

a voice recognition unit coupled with the voice input device and processor, the voice recognition unit being operative to convert a voice signal received from the voice input device into a command signal recognizable by the processor.

10

2. The ultrasound review station of Claim 1, wherein the command signal instructs the processor to display an ultrasound image.

3. The ultrasound review station of Claim 1, wherein the command signal instructs the processor to display an ultrasound examination report.

15

4. The ultrasound review station of Claim 1, wherein the command signal instructs the processor to insert a textual phrase into an ultrasound examination report.

20

5. The ultrasound review station of Claim 1, wherein the command signal instructs the processor to insert an ultrasound image into an ultrasound examination report.

25

6. The ultrasound review station of Claim 1, wherein the command signal instructs the processor to perform an editing operation within an ultrasound examination report.

7. The ultrasound review station of Claim 1, wherein the command signal instructs the processor to navigate through displayed information.

8. The ultrasound review station of Claim 1, wherein the command signal instructs the processor to display a marker on an ultrasound image.

5 9. The ultrasound review station of Claim 1 further comprising a display device coupled with the processor, and wherein the command signal instructs the processor to display available voice commands on the display device.

10 10. The ultrasound review station of Claim 1, wherein the command signal selects a focus.

11. The ultrasound review station of Claim 1 further comprising a plurality of display devices coupled with the processor, and wherein the command signal instructs the processor to select one of said plurality of display devices.

15 12. The ultrasound review station of Claim 1 further comprising:  
a voice output device; and  
a voice production unit coupled with the processor and the voice output device, the voice production unit being operative to convert a voice output signal from the processor into a voice reproducible by the voice output device.

20 13. The ultrasound review station of Claim 12, wherein the voice recognition unit and the voice production unit are integrated.

25 14. An ultrasound review station comprising:

a voice output device;

a processor; and

a voice production unit coupled with the processor and the voice output device, the voice production unit being operative to convert a voice output signal from the processor into a voice reproducible by the voice output device.

15. The ultrasound review station of Claim 14, wherein the voice reproducible by the voice output device asks the user to confirm a command.

5 16. The ultrasound review station of Claim 14, wherein the voice reproducible by the voice output device provides the user with a verbal alert.

17. The ultrasound review station of Claim 14, wherein the voice reproducible by the voice output device provides an answer to a query presented to the processor by a user.

10 18. The ultrasound review station of Claim 14, wherein the voice reproducible by the voice output device provides the user a status of a voice recognition unit.

15 19. The ultrasound review station of Claim 14, wherein the voice reproducible by the voice output device provides an indication of a completion of an activity.

20. The ultrasound review station of Claim 14 further comprising:  
a voice input device; and  
a voice recognition unit coupled with the voice input device and processor, the  
20 voice recognition unit being operative to convert a voice signal received from the voice input device into a command signal recognizable by the processor.

21. The ultrasound review station of Claim 20, wherein the voice recognition unit and the voice production unit are integrated.

25 22. An ultrasound imaging system comprising;  
a processor;  
a voice output device; and

a voice production unit coupled with the processor and the voice output device, the voice production unit being operative to convert a voice output signal from the processor into a voice reproducible by the voice output device.

5           23.     The ultrasound imaging system of Claim 22, wherein the voice reproducible by the voice output device asks the user to confirm a command.

24.     The ultrasound imaging system of Claim 22, wherein the voice reproducible by the voice output device provides the user with a verbal alert.

10

25.     The ultrasound imaging system of Claim 22, wherein the voice reproducible by the voice output device provides an answer to a query presented to the processor by a user.

15

26.     The ultrasound imaging system of Claim 22, wherein the voice reproducible by the voice output device provides the user with a status of a voice recognition unit.

27.     The ultrasound imaging system of Claim 22, wherein the voice reproducible by the voice output device provides an indication of a completion of an activity.

20

28.     The ultrasound imaging system of Claim 22 further comprising:  
a voice input device; and

a voice recognition unit coupled with the voice input device and processor, the voice recognition unit being operative to convert a voice signal received from the voice input device into a command signal recognizable by the processor.

25

29.     The ultrasound imaging system of Claim 28, wherein the voice recognition unit and the voice production unit are integrated.

30. A method for converting a received voiced command into a command signal recognizable by an ultrasound imaging system processor, the method comprising:

- 5 (a) with an ultrasound imaging system processor, providing a voice recognition unit with voice information correlating a set of command signals recognizable by the ultrasound imaging system processor with an associated set of respective voiced commands;
- (b) with the voice recognition unit, receiving a voiced command; and
- (c) converting the received voiced command into a command signal using the voice information provided by the ultrasound imaging system processor.

10 31. The method of Claim 30 further comprising:

- (d) with the voice recognition unit, providing the command signal to the ultrasound imaging system processor.

15 32. A method for converting a received voiced command into a command signal recognizable by an ultrasound review station processor, the method comprising:

- 20 (a) with an ultrasound review station processor, providing a voice recognition unit with voice information correlating a set of command signals recognizable by the ultrasound review station processor with an associated set of respective voiced commands;
- (b) with the voice recognition unit, receiving a voiced command; and
- (c) converting the received voiced command into a command signal using the voice information provided by the ultrasound review station processor.

25 33. The method of Claim 32 further comprising:

- (d) with the voice recognition unit, providing the command signal to the ultrasound review station processor.

30 34. A method for providing an ultrasound imaging system with voice information, the method comprising:

- (a) identifying a user of an ultrasound imaging system;
- (b) providing a server coupled with the ultrasound imaging system with the identity of the user; and
- (c) with the server, providing the ultrasound imaging system with voice information associated with the user.

35. The method of Claim 34, wherein (b) comprises providing a server in an ultrasound network coupled with the ultrasound imaging system with the identity of the user.

36. The method of Claim 34, wherein (b) comprises providing a server integral with the ultrasound imaging system with the identity of the user.

37. The method of Claim 34, wherein (c) comprises with the server, providing the ultrasound imaging system with voice information associated with the user, said voice information correlating a set of command signals recognizable by the ultrasound imaging system processor with an associated set of respective voiced commands.

38. The method of Claim 34, wherein (c) comprises with the server, providing the ultrasound imaging system with voice information associated with the user, said voice information correlating a set of voice output signals transmitted by the ultrasound imaging system processor with an associated set of voice phrases reproducible by a voice output device of the ultrasound imaging system.

39. The method of Claim 34 further comprising (d) providing the server with a change to the voice information.

40. The method of Claim 34, wherein (a) comprises:

- (a1) receiving identification information from the user; and
- (a2) identifying the user based on the received identification information.

41. The method of Claim 40, wherein (a1) comprises receiving verbal identification information from the user.

5 42. The method of Claim 41, wherein (a1) comprises receiving verbal identification information from the user in response to an identification request from the ultrasound imaging system.

10 43. The method of Claim 40, wherein (a1) comprises receiving non-verbal identification information from the user.

44. A method for providing an ultrasound review station with voice information, the method comprising:

- 15 (a) identifying a user of an ultrasound review station;
- (b) providing a server coupled with the ultrasound review station with the identity of the user; and
- (c) with the server, providing the ultrasound review station with voice information associated with the user.

20 45. The method of Claim 44, wherein (b) comprises providing a server in an ultrasound network coupled with the ultrasound review station with the identity of the user.

25 ~~46. The method of Claim 44, wherein (b) comprises providing a server integral~~  
with the ultrasound review station with the identity of the user.

30 47. The method of Claim 44, wherein (c) comprises with the server, providing the ultrasound review station with voice information associated with the user, said voice information correlating a set of command signals recognizable by the ultrasound review station processor with an associated set of respective voiced commands.

48. The method of Claim 44, wherein (c) comprises with the server, providing the ultrasound review station with voice information associated with the user, said voice information correlating a set of voice output signals transmitted by the ultrasound review station processor with an associated set of voice phrases reproducible by a voice output device of the ultrasound review station.

49. The method of Claim 44 further comprising (d) providing the server with a correction to the voice information.

50. The method of Claim 44, wherein (a) comprises:

- (a1) receiving identification information from the user; and
- (a2) identifying the user based on the received identification information.

51. The method of Claim 50, wherein (a1) comprises receiving verbal identification information from the user.

52. The method of Claim 51, wherein (a1) comprises receiving verbal identification information from the user in response to an identification request from the ultrasound review station.

53. The method of Claim 50, wherein (a1) comprises receiving non-verbal identification information from the user.

---

54. A method for using voice commands to insert a textual phrase into a section of an ultrasound examination report, the method comprising:

(a) receiving a voiced command from a voice input device of an ultrasound imaging system to insert a textual phrase into a section of an ultrasound examination report;

(b) identifying a set of textual phrases associated with the section;



(c) converting the received voiced command into a textual phrase selected from the set of textual phrases identified in (b); and

(d) inserting the textual phrase selected in (c) into the section.

5 55. The method of Claim 54 further comprising receiving a voiced request to create an ultrasound examination report, the ultrasound examination report comprising a plurality of sections associated with a respective set of textual phrases.

10 56. The method of Claim 54 further comprising automatically displaying a set of available voice commands associated with the section.

57. The method of Claim 54 further comprising:

(e) receiving a voiced request for a display of a set of available voice commands associated with the section; and

15 (f) displaying the set of available voice commands associated with the section in response to the voiced request received in (e).

20 58. The method of Claim 54, wherein (a) comprises receiving a voiced command to insert a textual phrase into a section of an ultrasound examination report displayed on an ultrasound imaging system.

25 59. The method of Claim 54, wherein (a) comprises receiving a voiced command to insert a textual phrase into a section of an ultrasound examination report displayed on an ultrasound review station.

60. The method of Claim 54 further comprising:

(e) receiving a voiced request to insert an image into a section of the ultrasound examination report; and

30 (f) inserting the image into the ultrasound examination report in response to the voiced request received in (e).

61. The method of Claim 54 further comprising:

(e) receiving a voiced request to edit a section of the ultrasound examination report; and

5 (f) editing the section of the ultrasound examination report in response to the voiced request received in (e).

62. A method for using voice commands to insert a textual phrase into a section of an ultrasound examination report, the method comprising:

10 (a) receiving a voiced command from a voice input device of an ultrasound review station to insert a textual phrase into a section of an ultrasound examination report;

(b) identifying a set of textual phrases associated with the section;

15 (c) converting the received voiced command into a textual phrase selected from the set of textual phrases identified in (b); and

(d) inserting the textual phrase selected in (c) into the section.

63. The method of Claim 62 further comprising receiving a voiced request to create an ultrasound examination report, the ultrasound examination report comprising  
20 a plurality of sections associated with a respective set of textual phrases.

64. The method of Claim 62 further comprising automatically displaying a set of available voice commands associated with the section.

---

25 65. The method of Claim 62 further comprising:

(e) receiving a voiced request for a display of a set of available voice commands associated with the section; and

(f) displaying the set of available voice commands associated with the section in response to the voiced request received in (e).

66. The method of Claim 62, wherein (a) comprises receiving a voiced command to insert a textual phrase into a section of an ultrasound examination report displayed on an ultrasound imaging system.

5 67. The method of Claim 62, wherein (a) comprises receiving a voiced command to insert a textual phrase into a section of an ultrasound examination report displayed on an ultrasound review station.

68. The method of Claim 62 further comprising:

10 (e) receiving a voiced request to insert an image into a section of the ultrasound examination report; and

(f) inserting the image into the ultrasound examination report in response to the voiced request received in (e).

15 69. The method of Claim 62 further comprising:

(e) receiving a voiced request to edit a section of the ultrasound examination report; and

(f) editing the section of the ultrasound examination report in response to the voiced request received in (e).

20 70. A method for using voice commands to display a marker on an ultrasound image, the method comprising:

(a) receiving a voiced command from a user;

25 (b) converting the received voiced command into a marker displayable on a display device; and

(c) displaying the marker on an ultrasound image displayed on the display device.

71. The method of Claim 70, wherein (b) comprises converting the received voiced command into at least one word, and wherein (c) comprises displaying said at least one word on an ultrasound image displayed on the display device.

5 72. The method of Claim 71, wherein (b) comprises converting the received voiced command into at least one anatomical-identifying word, and wherein (c) comprises displaying said at least one anatomical-identifying word on an ultrasound image displayed on the display device.

10 73. The method of Claim 70, wherein (b) comprises converting the received voiced command into a geometric shape, and wherein (c) comprises displaying the geometric shape on an ultrasound image displayed on the display device.

15 74. The method of Claim 70, wherein an ultrasound image is associated with one of a plurality of study types, wherein each of said plurality of study types is associated with a respective set of markers, and wherein (b) comprises:

- (b1) identifying a study type of the ultrasound image;
  - (b2) identifying a set of markers associated with the study type; and
  - (b3) converting the received voiced command into a marker selected from
- 20 the set of markers identified in (b2).

75. The method of Claim 70 further comprising receiving a voiced command from a user indicating that a subsequent voiced command will be associated with a marker, said receiving occurring before (a).

---

25 76. The method of Claim 70, wherein (c) comprises displaying the marker on the ultrasound image at a position indicated by a pointer displayed on the ultrasound image.

77. The method of Claim 70, wherein (c) comprises selecting a location on the ultrasound image to position the marker.

5 78. The method of Claim 70, wherein (b) comprises converting the received voiced command into a plurality of markers, and wherein (c) comprises selecting a plurality of locations on the ultrasound image to respectively position each of the plurality of markers.

10 79. The method of Claim 70 further comprising:

- (d) positioning a pointer over a marker displayed on the ultrasound image;
- (e) receiving a verbal delete command from a user; and
- (f) removing the marker from the ultrasound image in response to the received verbal delete command.

15 80. The method of Claim 70 further comprising:

- (d) positioning a pointer displayed on the ultrasound image over the marker;
- (e) receiving a verbal copy command from the user;
- (f) creating a copy of the marker in response to the received verbal copy command; and
- 20 (g) positioning the copy of the marker on another location of the ultrasound image.

25 81. A method for providing voice data from a first to a second ultrasound device, the method comprising:

- (a) receiving voice data with a first ultrasound device;
- (b) providing a second ultrasound device with the voice data received in (a); and
- 30 (c) with the second ultrasound device, converting the voice data into a command signal recognizable by a processor of the second ultrasound device, the first

and second ultrasound devices being devices selected from the group of ultrasound devices consisting of an ultrasound imaging system and an ultrasound review station.

82. The method of Claim 81, wherein (b) comprises:

5 (b1) transmitting the voice data received in (a) to a server coupled with the first and second ultrasound devices; and

(b2) with the server, transmitting the voice data received in (b1) to the second ultrasound device.

10 83. The method of Claim 81, wherein (b) comprises:

(b1) storing the voice data received in (a) on a portable storage device; and

(b2) providing the portable storage device to the second ultrasound device.

15 84. The method of Claim 81, wherein (b) comprises transmitting the voice data received in (a) to the second ultrasound device via a communication link directly coupling the first and second ultrasound devices.

85. A method for providing a command signal from a first to a second ultrasound device, the method comprising:

20 (a) receiving voice data with a first ultrasound device;

(b) transmitting the voice data received in (a) to a server coupled with the first ultrasound device; and

(c) with the server, converting the voice data transmitted in (b) to a command signal recognizable by a processor of a second ultrasound device; and

25 (d) with the server, providing the command signal to the second ultrasound device, the first and second ultrasound devices being devices selected from the group of ultrasound devices consisting of an ultrasound imaging system and an ultrasound review station.

86. The method of Claim 85 further comprising:

(e) with the server, providing the command signal to the third ultrasound device, the third ultrasound device being a device selected from the group of ultrasound devices consisting of an ultrasound imaging system and an ultrasound review station.

87. The method of Claim 85, wherein the first ultrasound device comprises the second ultrasound device.

88. An ultrasound transducer comprising:

at least one transducer element; and

a microphone;

said at least one transducer element and said microphone providing electrical signals to an ultrasound imaging system coupled with the ultrasound transducer.

89. The ultrasound transducer of Claim 88, wherein the microphone is built-into the ultrasound transducer.

90. The ultrasound transducer of Claim 88, wherein the microphone is removeably coupled with the ultrasound transducer.

91. A method for using voice commands to assign a function to an ultrasound imaging system or ultrasound review station user interface, the method comprising:

(a) receiving a voiced command from a user;

(b) converting the received voiced command into a function;

(c) assigning the function to a user interface device; and

(d) performing the function in response to a signal from the user interface device.

92. The method of Claim 91, wherein (c) comprises assigning the function to a user interface device, the user interface device being depressible.

93. The method of Claim 91, wherein (c) comprises assigning the function to a user interface device, the user interface device being movable.

94. The method of Claim 91, wherein (c) comprises assigning the function to a user interface device, the user interface device being depressible and movable.

95. The method of Claim 91, wherein (c) comprises assigning the function to a user interface device on an ultrasound imaging system, and wherein (d) comprises performing the function in response to a signal from the user interface device on the ultrasound imaging system.

96. The method of Claim 91, wherein (c) comprises assigning the function to a user interface device built into an ultrasound transducer, and wherein (d) comprises performing the function in response to a signal from the user interface device built into the ultrasound transducer.

97. The method of Claim 91, wherein (c) comprises assigning the function to a user interface device removably coupled with an ultrasound transducer, and wherein (d) comprises performing the function in response to a signal from the user interface device removably coupled with the ultrasound transducer.

98. The method of Claim 91, wherein (c) comprises assigning the function to a user interface device on an ultrasound review station, and wherein (d) comprises performing the function in response to a signal from the user interface device on the ultrasound review station.



99. The method of Claim 91, wherein (c) comprises assigning the function to a user interface device selected from a group of user interface devices consisting of a wheel, a ball, a knob, a button, and a slider.
-